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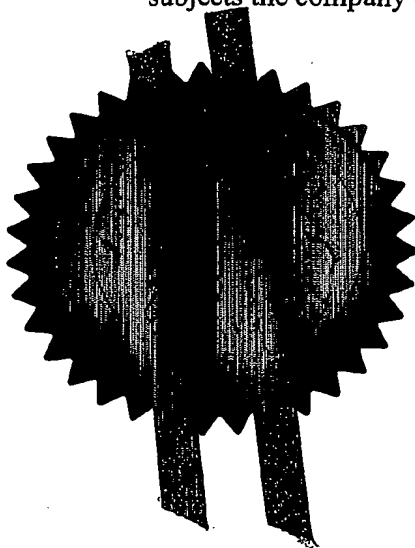
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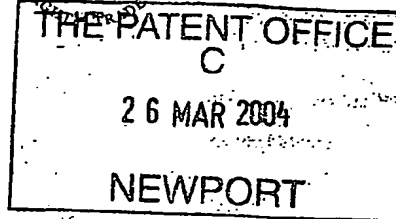


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2. Patent application number

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0406789.8

26 MAR 2004

3. Full name, address and postcode of the or of each applicant (underline all surnames)

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Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

883744 500 1

4. Title of the invention

Joist Holder

5. Name of your agent (if you have one)

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"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

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Joist Holder

The present invention relates to a holder for a joist.

Traditionally there have been two ways of mounting joists on walls. One solution is to use a galvanised metal 'hanger' that has the appearance of a triangular box with an anchor portion that extends back across the part of the wall to which the joist is to be connected. These hangers are generally regarded as unsatisfactory because they frequently cause the underlying portion of the wall to crumble and this results in uneven floors. The other conventional method is simply to build the joist into the wall, but recent British building regulations specify that there must be a watertight seal between the joist and the wall as otherwise moisture from the wall can cause the joists to rot. The current common methods of complying with this requirement are either to wrap the joist in damp proof course material or to apply a silicon sealant between the joist and the wall. However, these are considered to be very time-consuming operations and the cost of the silicon sealant is relatively high.

Embodiments of the present invention are intended to provide an alternative to these existing approaches and overcome their associated problems.

According to a first aspect of the present invention there is provided a joist holder including a preformed water-impermeable sleeve for receiving one end of a joist, the sleeve being mountable on a wall.

One end of the sleeve may have a base portion so that the holder forms a box with one open end.

A flange may extend transversely from one or more edges of the open

end of the sleeve. In use, the flange may abut the surface of the wall into which the joist is inserted. The flange may include one or more apertures for screws or the like. The width of the flange may be around 25 to 75 millimetres.

5 In some embodiments the outer surface of the sleeve may include protrusions or ridges in order to improve adhesion to cement or the like on the wall.

The holder may be dimensioned to substantially correspond to dimensions of standard joists. For example, the dimensions of the rectangular sleeve may be suitable for fitting around the end of a 225 millimetre x 47 millimetre standard rectangular joist. Often the joist will be slightly larger than the intended standard dimensions and so suitable dimensions for the holder will be around 230 mm x 50 mm. It will be appreciated that these dimensions can be modified to fit joists of other standard (or non-standard) dimensions.

15 The joist holder may be formed of metal or plastic material. In one embodiment the holder is formed of galvanised steel which is then coated with an elastomeric material such as rubber. The coating may be applied by dipping.

The depth of the sleeve may correspond to the depth of a standard building block or brick. In use, the height of the holder may generally correspond to the expected height of one or more building units. For example, 20 the height of the holder may correspond to the expected height of three bricks and associated layers of cement, or the height of the holder may correspond to the expected height of one block and associated layer of mortar.

According to another aspect of the present invention there is provided a method of mounting a joist in a wall including steps of:

inserting an end of a joist into a preformed water-impermeable sleeve,
and
mounting the sleeve onto the wall.

The inserting step may take place before the mounting step, or vice
versa.

The method may further include a step of placing wall-building materials
around and/or on top of the sleeve.

The method may include a step of further securing the sleeve to the wall,
e.g. by inserting screws through a flange extending around one end of the
sleeve to fix the sleeve to the wall.

According to a further aspect of the present invention there is provided a
method of mounting a joist including steps of:

positioning a joist end into a water-impermeable preformed sleeve, and
locating the sleeve in a course of building blocks or the like,
wherein the steps of positioning and locating can be performed in either
order.

According to yet another aspect of the present invention there is provided
a sleeve for a joist comprising a water impermeable preformed wall for at least
partially encircling an end of the joist for preventing water penetration to the joist
end, wherein the sleeve is dimensioned to have a depth approximately equal to
a standard building block, the sleeve further including an anchor portion for
anchoring to the face of a block work wall.

According to a further aspect of the present invention there is provided a
building structure including joists mounted by means of a joist holder

substantially as described herein.

According to a further aspect of the present invention there is provided an assembly including a joist and a joist holder substantially as described herein.

The invention may be performed in various ways, and, by way of example only, embodiments thereof will now be described, reference being made to the accompanying drawings, in which:-

Figure 1 is a perspective view of one embodiment of the joist holder, and Figure 2 illustrates schematically the holder mounted in a wall.

Referring to Figure 1, the joist holder 100 comprises a rectangular tubular sleeve 102 with one open end of the sleeve being closed by means of a base plate (indicated at 104). Thus, the holder 100 has the general appearance of a box with one open end that allows access to a cuboid-shaped internal space 106. In some embodiments, the base plate 104 may be a separate component that is attached to the end of the joist/sleeve during installation. It will be appreciated that variations to the design shown in Figure 1 can be made, e.g. having curved edges to the corners of the sleeves and the like

The depth of the sleeve 102 can correspond to that of a standard building block or brick. In one example the depth of the sleeve is around 100 millimetres, although it will be appreciated that this dimension could be varied in accordance with any particular construction requirements. Joists come in a range of standard sizes, normally: 102 x 47 millimetres; 127 millimetres x 47 millimetres; 152 x 47 millimetres; 203 x 47 millimetres and 228 millimetres x 47 millimetres. The sleeve 102 can be dimensioned in order to securely fit around the end of a joist having any of these dimensions (or any other non-standard dimensions). It

will be appreciated that the dimensions of the space 106 inside the holder will often be slightly larger than the dimensions of the joist to be fitted inside it.

Extending around the open end of the sleeve 102 is a rectangular flange 108. The width of the flange extending from the rim of the sleeve can be in the range of 25 to 75 millimetres. In alternative embodiments, a flange only extends from one or some of the four edges of the sleeve. The flange 108 includes a plurality of apertures 110, e.g. located at corner and central positions of the flange.

In the example holder 100 of Figure 1, the base portion 104, the rectangular sleeve 102 and the flange 108 are formed of separate sheets of metal that have been welded together. It will be appreciated that other methods and materials can be used to form the holder. For example, the holder can be formed of one or more piece of moulded plastic. The holder may also be coated with another material, such as rubber, which can provide increased friction with surrounding materials, thus making it more stable in use. In an alternative embodiment one or more of the outer surfaces of the sleeve 102 can include a one or more protrusions (e.g. rib-like formations), which can further improve adhesion to cement or the like.

Referring to Figure 2, the holder 100 is shown in situ in a wall 200. The left hand side of the Figure demonstrates how the holder 100 is fitted when the wall is formed of blocks, whilst the right hand side illustrates how the holder is fitted when bricks are used. An example of how the holder can be used to mount a joist in the wall will now be described, although it will be appreciated that variations of these steps are possible.

When constructing the wall 200 using bricks, one or more lower courses of bricks 201 are formed and a layer of cement is then laid on top. The joist holder 100 is placed on top of the cement at the desired location. As shown, one of the narrow sides of the holder 100 is normally placed on the course to accommodate a joist in its conventional construction orientation. A next course of bricks 202 is then laid on top of the lower course 201, with a pair of these bricks abutting the two exposed sides of the joist holder 100. The wall continues to be built this way with two subsequent courses of bricks 203, 203 being laid adjacent to the sides of the holder 100. Each brick has a height of about 65 mm and each layer of cement is about 10 mm. Thus, the three brick courses 202 - 204 and associated cement layers have a total height of around 225mm, which corresponds to the 225/230 mm dimension of the holder 100. Subsequent course of bricks, e.g. 205, are then laid on top of the course 204 and the holder 100 so that the holder is substantially surrounded by cement and bricks.

When constructing the wall 200 using blocks, one or more lower courses of blocks 209 are formed and a layer of mortar is then laid on top. The joist holder 100 is placed on top of the mortar at the desired location. A next course of blocks 210 is then laid on top of the lower course 209, with a pair of these blocks abutting the two exposed sides of the joist holder 100. Each block has a height of about 210 mm and the layer of mortar adds a height of about 15 mm, giving a total height of around 225mm, which again corresponds to the 225/230 mm dimension of the holder 100. Subsequent course of blocks, e.g. 211, are then laid on top of the course 210 and the holder 100 so that the holder is substantially surrounded by blocks and mortar.

The flange 108 abuts the corresponding surface of the surrounding bricks or blocks. Additional fixing means, e.g. screws through the apertures 110, can also be used to further secure the holder to the wall 200. An end of the joist is then placed into the space 106 within the holder 100.

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In an alternative construction method, the holder is fitted onto the end(s) of the joist before it is mounted on the wall and the rest of the wall is then built around the holder(s) fitted with the joist.

CLAIMS

1. A joist holder (100) including a joist holder including a preformed water-impermeable sleeve (102) for receiving one end of a joist, the sleeve being mountable on a wall (200).
- 5 2. A holder (100) according to Claim 1, wherein one end of the sleeve (102) is closed by a base portion (104) so that the holder forms a box with one open end.
3. A holder (100) according to Claim 1 or 2, including a flange (108) that extends transversely from one or more edges of the open end of the sleeve
10 (102).
4. A holder (100) according to Claim 3, where, in use, the flange (108) abuts the surface of the wall (200) into which the joist is inserted.
5. A holder (100) according to Claim 3 or 4, wherein the flange (108) includes one or more apertures (100) for screws or the like.
- 15 6. A holder (100) according to any one of Claims 3 to 5, wherein the width of the flange (108) is around 25 to 75 millimetres.
7. A holder (100) according to any one of the preceding Claims, wherein the outer surface of the sleeve (102) includes protrusions or ridges in order to improve adhesion to cement or the like.
- 20 8. A holder (100) according to any one of the preceding Claims, wherein the holder is dimensioned to substantially correspond to dimensions of standard joists.
9. A holder (100) according to Claim 8, wherein the sleeve is dimensioned to securely fit around the end of a 102 x 47 millimetres; 127 millimetres x 47

millimetres; 152 x 47 millimetres; 203 x 47 millimetres or 228 millimetres x 47 millimetres rectangular joist.

10. A holder (100) according to any one of the preceding Claims, wherein the joist holder is formed of metal or plastic material.

5 11. A holder (100) according to any one of the preceding Claims, wherein the surfaces of the holder are coated with a material such as rubber to provide increased friction.

10 12. A holder (100) according to any one of the preceding Claims, wherein the depth of the sleeve corresponds to the depth of a standard building block or brick.

13. A method of mounting a joist in a wall (200) including steps of:
inserting an end of a joist into a preformed water-impermeable sleeve (102), and
mounting the sleeve onto the wall.

15 14. A method according to Claim 13, wherein the inserting step takes place before the mounting step.

15. A method according to Claim 13, wherein the mounting step takes place before the inserting step.

20 16. A method according to Claim 13, further including a step of placing wall-building materials around and/or on top of the mounted sleeve (102).

17. A method according to any one of Claims 13 to 16, including a step of further securing the sleeve to the wall, e.g. by inserting screws through a flange extending around one end of the sleeve to fix the sleeve to the wall.

18. According to a further aspect of the present invention there is provided a

method of mounting a joist including steps of:

positioning a joist end into a water-impermeable preformed sleeve (102),

and

locating the sleeve in a course (201 - 207) of building blocks or the like,

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wherein the steps of positioning and locating can be performed in either

order.

19. A sleeve (102) for a joist comprising a water impermeable preformed wall for at least partially encircling an end of the joist for preventing water penetration to the joist end, wherein the sleeve is dimensioned to have a depth approximately equal to a standard building block, the sleeve further including an anchor portion (108) for anchoring to the face of a block work wall.

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20. A building structure including joists mounted by means of a joist holder (100) according to any one of Claims 1 to 12.

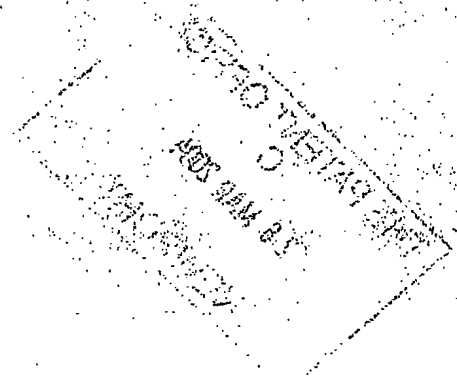
21. A building structure including joists mounted according to the method of any one of Claims 13 to 17 or 18.

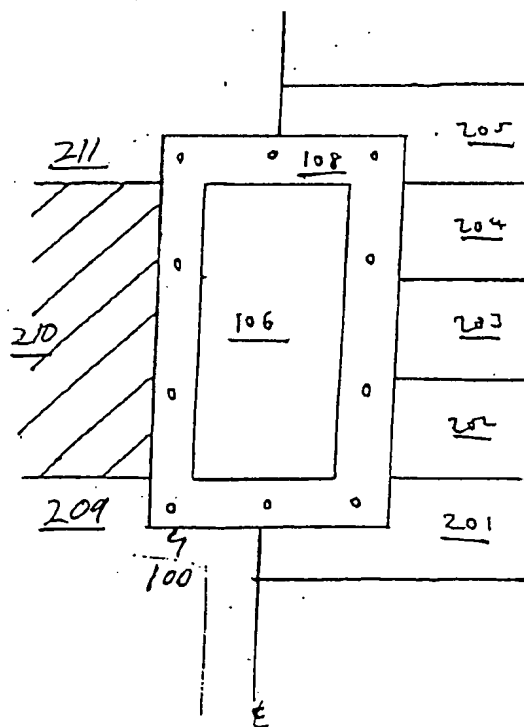
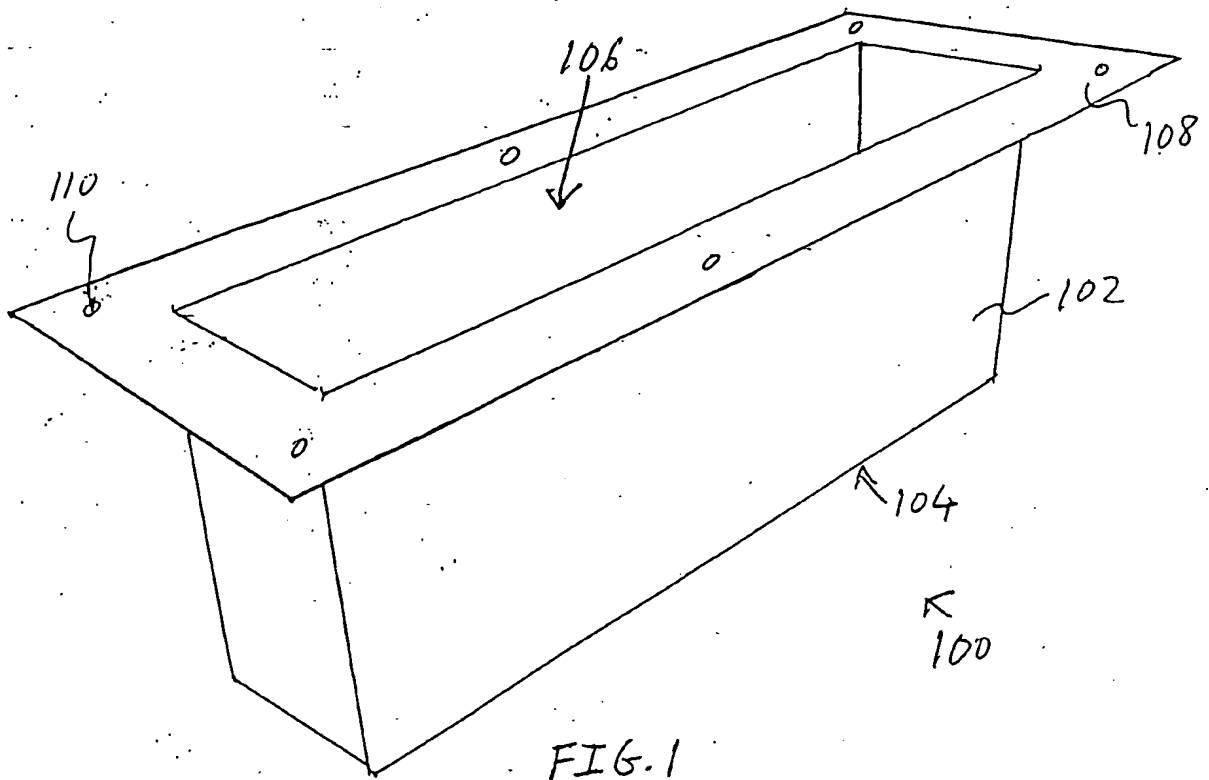
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22. An assembly including a joist and a joist holder according to any one of Claims 1 to 12.

23. A joist holder substantially as described herein above and/or with reference to the accompanying drawings.

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